

REMARKS

I. Status of Claims

Claims 53-104 are currently pending in this application with claims 72-104 withdrawn in view of the March 27, 2009 Restriction Requirement. Claim 53 has been amended. Section 112 support for the amendment can be found at least in the specification at example 5. As such, no new matter is being added by the amendment presented herein.

II. Rejections under 35 U.S.C. § 112, paragraph 2

A. The Office rejects claims 53-71 under 35 U.S.C. § 112, ¶ 2, as allegedly being indefinite for the reasons given on page 3 of the Office Action. Specifically, the Office questions "what components are included when calculating the cell resistance value of the fuel cell." *See* Office Action at 3. The Office also questions "how many number of fuel cell units makes up the stack." *See id.* To advance the prosecution, Applicants have amended claim 53 to make clear that the cell resistance value is for a single cell in the fuel cell. Applicants submit that one of skill in the art would know what components are included in when calculating the cell resistance value, particularly in view of Example 5 on page 18 of Applicants' specification. In Example 5, the phrase "membrane electrode assembly (MEA)" was used which indicates that the ohmic resistance of the anode, cathode, and electrolyte components were measured together. It is unclear how there can be any confusion for how the ohmic resistance is measured once it has been specified that that the value is for one cell. Accordingly, Applicants respectfully submit that the rejection should be withdrawn.

B. The Office rejects claims 58 under 35 U.S.C. § 112, ¶ 2, as allegedly being indefinite for the reasons given on page 3 of the Office Action. Specifically, the Office questions “what ‘an oxygen bridge’ is or how something is ‘grafted to the polyolefin through an oxygen bridge.” See Office Action at 3. Applicants respectfully traverse. One skilled in the art, understanding the concept of grafting, would know that oxygen atoms can be linking groups, such as an ether bridge, -C-O-C-. Since the atom of the side chain and the atom of the polyolefin at the point of contact may not be a carbon atom, Applicants did not limit the claim to ether bridges. Rather the claim, as one skilled in the art would understand, covers -A-O-A- bridges, where A may be any atom. Accordingly, Applicants respectfully submit that the rejection should be withdrawn.

III. Rejection under 35 U.S.C. § 102(b)

The Office rejects claims 53-60 and 62-71 under 35 U.S.C § 102(b) as being allegedly anticipated by U.S. Patent No. 5,656,386 to Scherer et al. See Office Action at 3-6. Applicants respectfully disagree and traverse for the reasons set forth below.

In order to show anticipation, the Office must provide a single reference that discloses, either expressly or inherently, each and every element of the pending claims. See M.P.E.P. § 2131. Further, a rejection under 35 U.S.C. § 102 is proper only when the claimed subject matter is identically described or disclosed in the prior art. See *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972). Inherency may not be established by mere probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981).

The Office asserted that “Scherer et al. does not specifically disclose a value of cell resistance... [h]owever, such properties are inherent given that both Scherer et al. and the instant application utilize the same materials.” *See* Office Action at 4-5. Applicants respectfully disagree.

First, it is not enough for the Office merely to assert that the properties are inherent to the cells of Scherer et al. In fact, the Board has agreed that “when an examiner relies on inherency, it is incumbent on the examiner to point to the ‘page and line’ of the prior art which justifies an inherency theory.” *Ex parte Schricker*, 56 U.S.P.Q.2d 1723, 1725 (Bd. Pat. App. & Int. 2000) (emphasis in original) (Board vacating an obviousness rejection, which had stated the claimed effect would be inherent from the use of a specific compound). It has also been held that similarity of compositions is not enough to establish inherency. *Crown Operations Int’l Ltd. v. Solutia Inc.*, 62 U.S.P.Q.2d 1917, 1922-23 (Fed. Cir. 2002) (finding no evidence that “[the 2% reflectance limitation] must be necessarily present and a person of ordinary skill in the art would recognize its presence. . .” even though the reference disclosed the same layer structure, the same layer thicknesses, and the same layer materials).

Second, a review of Scherer et al. and Applicants’ specification evidences that the claimed properties are NOT inherent to a fuel cell comprising a cell, wherein the cell has: (a) an anode; (b) a cathode; and (c) a polymer electrolyte membrane placed between the anode and the cathode which comprises at least one polyolefin grafted with side chains containing proton conductive functional groups. Rather those properties limit the scope of the invention.

Scherer et al. discusses and uses a "Nafion type" polymer in its Examples 16-21, *i.e.*, every example of a cell. *See* col. 1, lines 28-39, cols. 10-12. In contrast, Applicants have noted that there are drawback associated with the use of Nafion, such as performance and cost. Applicants' Specification at pg. 4, ll. 17-27. In fact, Applicants expressly compared the claimed invention against cells comprising Nafion in Example 5 by testing cell resistance at various temperatures as shown in Table 2 and Figure 2. Applicants assert, "Table 2 and Fig. 2 clearly show that the fuel cell having the membranes according to the present invention (Example 3) has a high performance already at low temperatures (20°C) and maintain said high performances in the whole temperature range." *See* Specification at pg. 19, ll. 31-34.

With respect to the claimed properties, which are reported in Table 2, it is apparent that while all three cells had a cell resistance at 90°C not higher than 0.30 Ω cm², the cells with Nafion failed to meet the second claim limitation. The R% values, reported at the bottom of Table 2, are the percentage difference between the cell resistance at 20°C and the value of cell resistance at 90°C with respect to the value of cell resistance at 90°C. The values for Nafion are 109% and 184%, which stands in stark contrast to the value for the inventive example 3 membrane of 47.5%. This shows that the Nafion membranes do not have the claimed properties.

Therefore, the Office's assertions that the properties are inherent has been rebutted. The present specification demonstrates that the use of Nafion would result in values outside of the claimed ranges further demonstrating that the properties of Scherer et al. are not inherently identical to the present invention. Since at least the examples of Scherer et al. do not meet the claim limitations, the chance a Scherer et al.

cell would meet the limitation is at best a mere possibility, and thus, **by definition** *Scherer et al. cannot inherently disclose a cell meeting those limitations*. See *Akzo N.V. v. U.S. Int'l Trade Comm.*, 1 U.S.P.Q.2d 1241, 1425 (Fed. Cir. 1986) (affirmed that even though the prior art disclosure of "sulfuric acid" encompassed the claim term "98% concentrated sulfuric acid," it is only a mere probability and not an inherent disclosure of "98% concentrated sulfuric acid."); *Mehl/Biophile Int'l Corp. v. Milgraum*, 52 U.S.P.Q.2d 1303, 1306 (Fed. Cir. 1999) (even though the prior art laser was clearly either aligned or not aligned with the hair follicle, the mere possibility that it could be aligned, as required by claim, is not enough to apply the doctrine of inherency).

Therefore, Applicant respectfully submits that Scherer et al. fails to disclose all of the subject matter recited in independent claim 53 and that for at least this reason the rejection should be withdrawn.

IV. Rejection Under 35 U.S.C. § 103(a)

The Office rejects claim 61 under 35 U.S.C § 103(a) as being allegedly unpatentable over Scherer et al. in further view of U.S. Patent No. 5,679,482 to Ehrenberg et al. for the reasons provided at page 6 of the Office Action. Applicants respectfully disagree and traverse for the reason set forth below.

First, obviousness may not be predicated on an inherent disclosure. See *In re Shetty*, 566 F.2d 81, 86 (CCPA 1977) ("[T]he inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown."); see also

In re Naylor, 369 F.2d 765, 768 (CCPA 1966) ("[Inherency] is quite immaterial if . . . one of ordinary skill in the art would not appreciate or recognize the inherent result.").

Second, as established above, the cell resistance values are not inherent to Sherer et al. Third, Applicants submit that Ehrenberg et al. does not correct the deficiencies of Scherer et al., as discussed above. Accordingly, this rejection is also improper and should be withdrawn.

V. Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and timely allowance of the pending claims.

If the Examiner believes that a telephone conversation might advance prosecution of this application, the Examiner is cordially invited to call Applicants' undersigned attorney at (202) 408-4275.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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